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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/828,665

04/21/2004

Michel Desgagne

I-2-0496.1US

4930

24374

7590

10/03/2006

VOLPE AND KOENIG, P.C.

DEPT. ICC

UNITED PLAZA, SUITE 1600

30 SOUTH 17TH STREET

PHILADELPHIA, PA 19103

EXAMINER

PHUNKULH, BOB A

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/828,665	Applicant(s) DESGAGNE ET AL.	
	Examiner Bob A. Phunkulh	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The finality of the previous Office Action mailed 7/31/2006 is hereby withdrawn.

This communication is in response to applicant's 09/14/2006 amendment(s)/response(s) in the application of **DESGAGNE et al.** for "**METHOD AND SYSTEM FOR INTEGRATING RESOURCE ALLOCATION BETWEEN TIME DIVISION DUPLEX AND FREQUENCY DIVISION DUPLEX IN WIRELESS COMMUNICATION SYSTEMS**" filed 04/21/2004. The amendments/response to the claims have been entered. No claims have been canceled. No claims have been added. Claims 1-13 are now pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miya (US 2002/0105913) in view of *Takoa* et al. (US 2002/0173277), hereinafter *Takoa*.

Regarding claims 1-2, Miya discloses a method for integrating time division duplex (TDD) and frequency division duplex (FDD) in wireless communication systems, the method comprising the steps of:

receiving radio access bearer (RAB) requests along with a plurality of parameters regarding the request (see paragraph 0042);

selecting either a TDD or FDD connection based on the level of congestion or type of services requested (see paragraph 0042).

Miya fails to disclose selecting the TDD or FDD connection based on the different of data rates between the uplink and downlink connections.

Takoa, on the other hand, discloses monitoring the amount of data transfer volumes on the uplink and the downlink at the a monitoring station i.e. RNC or BSC (see paragraph 0083) selecting the FDD or mix TDD/FDD connection based on the amount data transfer volumes (different of data rates) in the uplink and downlink connections (see paragraphs 57-60).

Regarding claim 2, *Takoa* discloses TDD is selected where the different of data rate between the UL and DL connections is grater than a predetermined threshold (the volume of data on the UL and DL are not the same i.e. greater of less than, TDD is selected for uplink radio frequency f_1 for mode A and down link radio frequency f_2 for mode B, see figure 9B-9C, and paragraphs 0058-0059) and FDD is selected where the difference is not greater than the predetermined threshold (if the volume of the data on UL and DL are the same FDD is selected i.e. the different of volume between the UL and DL is equal to zero, see paragraph 0057).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made implement the prior art teaching of *Takoa* especially selecting high data rate for TDD transmission and low data rate for FDD transmission in the system taught by Miya in order to provides efficient used of the systems'

Art Unit: 2616

resources –where TDD is suitable for high speed packet transmission and FDD provides a wide coverage area to accommodate a mobile station in a favorable environment.

Regarding claim 3, Miya discloses the FDD connection is selected for RAB requests associated with voice applications(real-time request i.e. speech the FDD is selected, see paragraph 0042).

Regarding claim 4, Miya discloses evaluating a symmetry status of the UL and DL connections periodically once an initial connection has been established in response to a RAB request; and switching between TDD and FDD modes based on said symmetry status (the mobile station select TDD or FDD based on the received signal measurement, see paragraphs 0055 to 0061).

Regarding claim 5, Miya discloses all RAB requests are processed through a FDD RNC (see figure 5 and paragraph 0042).

Regarding claim 8, Miya discloses a system for integrating TDD and FDD in a communication system, the system comprising:

a core network (CN) (either telephone network 207 or IP network 208, see figure 5);

a time division duplex radio network controller (TDD RNC)(RNC 203, figure 5);

Art Unit: 2616

a frequency division duplex radio network controller (FDD RNC) (RNC 203, see figure 5); and,

a TDD-FDD selector for receiving a RAB request, and

a selector for selecting either a TDD or FDD connection based on the level of congestion or type of services requested (see paragraph 0042).

Miya fails to disclose selecting the TDD or FDD connection based on the estimated a degree of symmetry in the uplink and downlink connections.

Miya fails to disclose selecting the TDD or FDD connection based on the estimated a degree of symmetry in the uplink and downlink connections.

Takoa, on the other hand, discloses monitoring the amount of data transfer volumes on the uplink and the downlink at the a monitoring station i.e. RNC or BSC (see paragraph 0083) selecting the FDD or mix TDD/FDD connection based on the amount data transfer volumes (degree of symmetry) in the uplink and downlink connections (see paragraphs 57-60).

Regarding claim 9, *Takoa* discloses TDD is selected where the different of data rate between the UL and DL connections is grater than a predetermined threshold (the volume of data on the UL and DL are not the same i.e. greater of less than, TDD is selected for uplink radio frequency f_1 for mode A and down link radio frequency f_2 for mode B, see figure 9B-9C, and paragraphs 0058-0059) and FDD is selected where the difference is not greater than the predetermined threshold (if the volume of the data on UL and DL are the same FDD is selected i.e. the different of volume between the UL

Art Unit: 2616

and DL is equal to zero, see paragraph 0057).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made implement the prior art teaching of *Takoa* especially selecting high data rate for TDD transmission and low data rate for FDD transmission in the system taught by Miya in order to provides efficient used of the systems' resources –where TDD is suitable for high speed packet transmission and FDD provides a wide coverage area to accommodate a mobile station in a favorable environment.

Regarding claim 10, Miya discloses a FDD connection is selected for RAB requests associated with voice applications (real-time request i.e. speech the FDD is selected, see paragraph 0042).

Regarding claim 11, Miya discloses the TDD RNC, the FDD RNC, and the TDD-FDD selector are integrated into an integrated TDD/FDD RNC (see figure 5).

Claims 6-7, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Miya-*Takoa* as applied to claims 5 or 8 above, and further in view of Petersen (US 2002/0049062).

Regarding claims 6-7, 12-13, the combination of Miya-*Takoa* fails to disclose the FDD RNC includes a TDD serving radio network controller (S-RNC) and is configured to

Art Unit: 2616

support TDD Iur protocols; and only the CN and the FDD RNC are connected via an Iu interface and RAB requests are processed through the FDD RNC.

Petersen, on the other hand, discloses the FDD RNC includes a TDD serving radio network controller (S-RNC) and is configured to support TDD Iur protocols; and only the CN and the FDD RNC are connected via an Iu interface and RAB requests are processed through the FDD RNC (see figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of Petersen in the system taught by the combination of Miya-Takoa in order to take advantage of commonly used protocol and interface in the UTRAN network.

Conclusion

Any response to this action should be mailed to:

The following address mail to be delivered by the United States Postal Service (USPS) only:

Mail Stop _____
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Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for formal communications intended for entry)

Or:

The following address mail to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, Hand Delivery, etc.) as follow:

Art Unit: 2616

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Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Bob A. Phunkulh** whose telephone number is **(571) 272-3083**. The examiner can normally be reached on Monday-Tuesday from 8:00 A.M. to 5:00 P.M. (first week of the bi-week) and Monday-Friday (for second week of the bi-week).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor **Wellington Chin**, can be reach on **(571) 272-3134**. The fax phone number for this group is **(571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/828,665

Page 9

Art Unit: 2616

A handwritten signature in black ink, appearing to read "Bob A. Phunkulh", with a long horizontal stroke extending to the right.

Bob A. Phunkulh

Primary Examiner

TC 2600

Technology Division 2616

October 02, 2006

A handwritten signature in black ink, appearing to read "Wellington Chin", with a long horizontal stroke extending to the right.

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER